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**Title: Overweight or obesity management by therapists of the French therapists of the French obesity and overweight think thank group (G.R.O.S.).
Pilot study comparing its effects with standard nutritional management.**

Titre : Prise en charge du surpoids ou de l'obésité par les thérapeutes du Groupe de Réflexion sur l'Obésité et le Surpoids (GROS). Etude pilote comparant ses effets avec la prise en charge nutritionnelle standard.

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Conflits d'intérêt

Le premier auteur souligne avoir reçu une bourse de l'association GROS dans le cadre de sa thèse. Les autres auteurs déclarent n'avoir aucun conflit d'intérêt.

Ethique

L'étude pilote a été réalisée selon les règles d'éthique d'Helsinki

Chaque participant a été informé de l'étude et a donné son consentement éclairé.

A la suite de cette étude pilote, notre recherche a reçu un avis favorable du CPP Ile de France (CPP Ile de France 1 - DOSSIER NUMÉRO : 2017-mars-14497 ND, N ° IDRCB: 2017-A00611-52 le 3 mai 2017.

Title:

**OVERWEIGHT OR OBESITY MANAGEMENT BY THERAPISTS OF THE FRENCH OBESITY AND OVERWEIGHT THINK THANK GROUP (G.R.O.S.).
PILOT STUDY COMPARING ITS EFFECTS WITH STANDARD NUTRITIONAL MANAGEMENT.**

Titre en français :

PRISE EN CHARGE DU SURPOIDS OU DE L'OBESITE PAR LES THERAPEUTES DU GROUPE DE REFLEXION SUR L'OBESITE ET LE SURPOIDS (GROS).
ETUDE PILOTE COMPARANT SES EFFETS AVEC LA PRISE EN CHARGE NUTRITIONNELLE STANDARD.

Résumé

Introduction Les recommandations internationales destinées aux personnes souffrant d'obésité ou de surpoids basées sur des conseils nutritionnels qualitatifs et/ou quantitatifs ne sont pas efficaces sur le long terme. En revanche, l'alimentation intuitive, qui consiste à manger naturellement en fonction de ses besoins physiologiques et émotionnels, apparaît être une alternative pertinente aux régimes amaigrissants. Le Groupe de Réflexion sur l'Obésité et le Surpoids (GROS) propose une prise en charge triaxiale permettant au patient souffrant de surpoids ou d'obésité d'acquérir ce comportement flexible et adaptatif. **Objectif** L'objectif de cette étude pilote est de comparer les effets à court terme sur le poids et autres variables psychologiques de deux prises en charge différentes chez des patients souffrant de surpoids ou d'obésité : la prise en charge du GROS basée sur l'alimentation intuitive et la prise en charge diététique standard, basée sur des recommandations nutritionnelles (DIET). **Méthode** 35

participants répartis en deux groupes (GROS et DIET) ont été inclus dans cette étude. Le poids, l'indice de masse corporelle, les scores de restriction cognitive, d'alimentation émotionnelle, d'alimentation intuitive et de la symptomatologie dépressive ont été mesurés au début de l'étude puis trois mois après. **Résultats** Cette étude pilote a mis en évidence, après trois mois de prise en charge GROS, une baisse du poids, de l'indice de masse corporelle et de l'alimentation émotionnelle, ainsi qu'une augmentation de l'alimentation intuitive. La prise en charge diététique standard n'a permis de montrer qu'une baisse de la symptomatologie dépressive, mais la différence avec la prise en charge GROS n'était pas significative. **Conclusion** La prise en charge du GROS semble être une alternative aux régimes amaigrissants intéressante. En revanche, cette étude a de nombreuses limites et des recherches complémentaires sont nécessaires pour confirmer ces résultats.

Mots clés

Obésité ; surpoids ; alimentation intuitive ; efficacité

Abstract

Introduction Currently, international recommendations for obese and overweight people that explicitly target weight loss and are based on qualitative and/or quantitative nutritional counseling and increased physical activity do not appear to be effective in the long term. In contrast, intuitive eating seems to be an interesting alternative to dieting. The G.R.O.S., a French nonprofit organization, offers tri-axial management that would enable overweight or obese individuals to acquire this flexible and adaptive behavior that consists of eating naturally according to one's physiological and emotional needs. **Objective** After describing the three axes of management by G.R.O.S., a pilot study is presented to evaluate the efficacy of this

management type in overweight or obese subjects compared to a standard diet (DIET). **Method** Thirty-five subjects were divided into two groups (G.R.O.S. and DIET), and their weight, body mass index, cognitive restraint scores, emotional eating, intuitive eating, and depressive symptomatology were measured at the beginning of the study and three months later. **Results** This pilot study showed the positive effect of weight management, body mass index, intuitive eating, and emotional eating compared with standard dietary management, which only affects the depressive symptomatology. **Conclusions** The G.R.O.S. management style seems to be an interesting and effective alternative to slimming diets. However, this study presented a number of limitations, including the sample size, nonrandomization of subjects in groups, and nonstandardization of care.

Keywords

Obesity, overweight, intuitive eating, efficacy

Introduction

International recommendations for obese and overweight people are usually based on qualitative and/or quantitative nutrition counseling and increased physical activity (de Batz, Faucon, & Voynet, 2016, Romano, Swanbrow Becker, Colgary, & Magnuson, 2018). Unfortunately, the results on weight are not conclusive. Indeed, a meta-analysis concluded that management based on dietary counseling had a modest effect on weight loss and that this modest effect diminished over time (Dansinger, Tatsioni, Wong, Chung, & Balk, 2007). Moreover, a study of 8824 people found that dieting contributed to a risk of obesity and an increase in body mass index (BMI) (Siahpush et al., 2015).

Currently, intuitive eating (IE) seems to be a relevant alternative to dieting for overweight and obesity management. This flexible and adaptive dietary behavior (Tribole & Resh, 2012) consists of eating mainly according to the physiological signals of hunger and satiety (Tylka, Calogero, & Daníelsdóttir, 2015). According to the scientific literature, intuitive eaters have less food concerns and fewer dichotomous thoughts about the "good" or "bad" nature of foods (Tribole & Resh, 2012). Studies show a positive correlation between intuitive eating on the one hand and health and well-being on the other (Van Dyke & Drinkwater, 2014). Thus, eaters that are intuitive have more pleasure in eating, more positive emotions, greater satisfaction in life and higher self-esteem and show decreased cardiovascular risks, fewer alimentary behavior disturbances, less food disinhibition, reduced negative effects associated with bodily concern and decreased body mass index (Augustus-Horvath & Tylka, 2011, Camilleri et al., 2015, Denny, Loth, Eisenberg, & Neumark-Sztainer, 2013, Hawks, Madanat, Hawks, & Harris, 2005, Smith, Shelley, Leahigh, & Vanleit, 2006, Tylka et al., 2015, Tylka & Wilcox, 2006). Although intuitive eaters have a lower BMI than non-intuitive eaters, does eating intuitively lead to weight loss? The majority of studies have observed individuals who already have this eating behavior and compare them to those who do not have it yet.

How to help a patient become an intuitive eater is an issue to be resolved. The G.R.O.S. think tank (*Groupe de Réflexion sur l'Obésité et le Surpoids*), a French nonprofit association, claims to have a methodology to achieve this goal. Clinicians in this association help overweight or obese patients adopt intuitive eating to reach their balance weight (Apfeldorfer 2004, Waysfeld 2014, Zermati 2011). Supported by the international scientific literature, this management opposes ineffective and even deleterious restrictive approaches. However, does it help patients reach their goals? Is this method focused on changing eating behavior effective for changing weight, cognitive restraint, and emotional eating? After describing the three axes of the

G.R.O.S. management type, a pilot study will be presented to evaluate the efficacy of this management in overweight or obese patients compared to standard dietary management.

Dietary management

The care of overweight and/or obese people is essentially nutritional. Dietitians and nutritionists give advice and recommendations in order to achieve a balanced diet. Restrictive diets are prohibited and considered ineffective and potentially deleterious by the French National Agency for Health and Nutrition (National Agency for Food Safety, Environment and Labor, 2016). After performing an analysis of the rations currently consumed, dietitians give advice to achieve the recommended dietary intakes. No food is forbidden. Foods deemed to be fatty and/or sweet should be limited in quantity and frequency only. Practitioners also provide behavioral rules, such as not serving again, eating slowly and not skipping meals. Added to this is a new injunction: eat with pleasure (www.mangerbouger.fr).

Presentation of the G.R.O.S. protocol

The G.R.O.S. association, a think tank on obese and overweight individuals, trains therapists to improve the management of overweight or obese patients. These practitioners may be dietitians, psychologists, psychiatrists or doctors.

Therapeutic objective

The goal of the G.R.O.S. management protocol is for overweight or obese patients to acquire a healthy eating behavior and reach their balanced weight, which is programmed and not an inaccessible "ideal weight" (Hall & Guo, 2017, Speakman et al., 2011). This protocol opposes

traditional dietary management by teaching the patient to regulate their weight physiologically rather than follow external rules. The goal is for the patient to adopt an intuitive eating strategy controlled by their food sensations, desires and tastes, to accept that physiological regulation by the body is appropriate, and to listen to himself. The G.R.O.S. practitioner works with his patient on three axes starting with the most appropriate one according to the problem identified in the patient.

Cognitive restraint

The first axis of the G.R.O.S. management protocol is focused on the treatment of cognitive restraint. According to the scientific literature, cognitive restraint is the intention to control dietary intake in order to lose weight or maintain a stable weight (Lowe & Thomas, 2009, Julien Sweerts, Apfeldorfer, Romo, & Kuréta-Vanoli, 2016). The restrained eater may have a normal weight or be overweight or obese. Control may be effective or ineffective (Stice, Fisher, & Lowe, 2004). The intention to control one's dietary intake is the foreground. Clinically, cognitive restraint is identified by a desire for control or effective, qualitative and quantitative control of foods in order to lose weight. The restrained eater removes or attempts to remove the most energetic foods (fat and/or sugar), respects a certain number of meals a day at set times, and follows other dietary rules according to his beliefs. The restrained eater obeys rules, thinks of his diet, eats on a reasoned, anticipated way, without listening enough or precisely his physiological needs (energetic, nutritional and emotional). Unfortunately, long-term overweight or obese restrained eaters fail to follow their rules and feel painful emotions (de Witt Huberts, Evers, & Ridder, 2013). One of the main negative emotions felt is guilt. The patients feel guilty when they eat a high-calorie food (Macht & Dettmer, 2006; Macht, Gerer, & Ellgring, 2003), eat too much (Rozin, Kabnick, Pete, Fischler, & Shields, 2003), and fail to follow previously set rules. Food is no longer a source of energy or pleasure but a source of

anxiety and guilt (Rozin, Fischler, Imada, Sarubin, & Wrzesniewski, 1999). Eating becomes scary and guilty. G.R.O.S. therapists help their patients move from "mental" control to "physiological" control to acquire a more intuitive and sensory eating behavior. They propose them specific experiences in order to best spot and respect their food sensations and reintroduce "taboo" foods, which are perceived as banned because of magnified cognitive biases. In the context of defined and prepared exposure, the patient learns to spot his hunger, a physiological signal of energy deficit, to distinguish it from any other sensation or emotion, recognize its different phases and better respect it. The patient's food beliefs are identified and changed according to the adapted method (information, psychoeducation, cognitive restructuring, demotion or by specifically designed experiments). Listening to physiological sensations is at the heart of this axis. The patient learns to concentrate on what he eats and keep his attention on the taste of food and not on his thoughts or any other distractor. The tasting technique helps the patient to better identify the different satiations, the specific sense (the moment the taste of food is less noticeable and less pleasant) and the global sense (the end of the desire to eat). At the end of this work, he eats according to his hunger and satiation and respects his satiety. However, "cravings for emotional eating" prevent some patients from achieving this goal.

Emotional axis

Food is often used to treat emotional distress and calm intolerable conscious or unconscious emotions (Goldfield, Adamo, Rutherford, & Legg, 2008). The immediate need of the patient is not to respect his energy homeostasis but to restore a neutral or positive emotional state. Generally, he eats immediately, without conscience and with urgency, to quickly mitigate his emotional embarrassment. It is important to emphasize that this behavior is normal, and according to the theory of self-regulation (Schwartz, 1975), it would not have consequences on the weight if the patient respected at other times his food sensations. However, overweight or

obese emotional eaters suffer a double penalty: not only are they overweight but food no longer plays its role as natural emotional regulator. The more the subject eats, the more he feels bad, and the more he feels bad, the more he eats (de Witt Huberts et al., 2013).

The first (but not the simplest) goal is to recognize that eating fatty and sugary foods is comforting and accepting that this behavior leads to feeling better even if the patient is overweight or obese. Indeed, the more he fights against his desire to eat, the cravings will be more frequent and intense and the risk of compulsion becomes more important. He learns to give up the fight and accept the urges to eat despite the intense presence of control thoughts and feelings of guilt. Once this acceptance is reached, he can comfort himself effectively because without the associated negative emotions, his "food-medicine" can be eaten carefully.

At the same time, a more global work focused on emotions is often proposed: the patient awakens to the presence of emotions and learns to identify them by naming, accepting and supporting them. Mindfulness (Kristeller & Wolever, 2011, Segal, Williams, & Teasdale, 2002) and ACT (Acceptance and Engagement Therapy) (Ducasse & Fond, 2015) can be used to achieve this end.

Self-acceptance

After working on the first two axes, overweight or obese patients generally have a more serene diet and may have lost weight. Very often, however, this weight corresponds to the weight of equilibrium while the physiological weight of the body is different from the ideal expected weight. It is then a question of mourning the perfect, idealized, standardized body. This work is extremely complicated because this imperfect or even fat or obese body is visible to all and stigmatized (Sattler, Deane, Tapsell & Kelly, 2018, Spahlholz, Baer, König, Riedel-Heller, & Luck-Sikorski, 2016). Fat people are perceived as lacking will and control. Therefore the imperfect body must be lived with but also respected.

Self-acceptance is also about accepting an imperfect human being and becoming competent and autonomous. Benevolence towards oneself is cultivated and includes learning to love oneself with this imperfection, learning to live, and no longer avoiding what is important for oneself so as not to suffer humiliation or imagined or real remarks. It is therefore about learning to live in this hostile world that stigmatizes the big and learning to assert, respect and be respected. Again, ACT therapies and mindfulness tools can be used as can cognitive behavioral therapy (CBT).

Thus, the patient must learn to let go of the mental control of his body in favor of sensory and benevolent listening. He will listen to his body's physiological and emotional needs and trust his self-regulating abilities. The therapy will allow him to live his emotions rather than eat them and his priorities and values will emerge, and he will learn to put them forward and express them to his friends and family if necessary. The patient will also acquire skills and social skills to learn how to live as best as he can.

This triaxial management, which is based on recent scientific literature, is therefore empirically based but has never been evaluated in France.

Effects of the G.R.O.S. management protocol compared to standard dietary management

Objectives

The purpose of this study is to compare the short-term effects on weight and other psychological variables of two different care settings in overweight or obese patients: G.R.O.S. management based on intuitive eating and standard dietary management based on nutritional recommendations. We hypothesize that the G.R.O.S. management protocols will promote a reduction of the cognitive restraints and emotional diets, an increase of the intuitive diet and an improvement of the intensity of depressive symptomatology (when applicable). On the other

hand, we expect that overweight individuals will show significantly decrease weight with the standard dietary management centered on a dietary balance and aimed at weight loss but not necessarily with the G.R.O.S. management protocol after only three months of management.

Method

participants

Recruitment of therapists

After contacting G.R.O.S. practitioners and dietitians-nutritionists via professional associations, five fat dieticians-nutritionists from G.R.O.S. and four dietitians-nutritionists following the standard protocol agreed to participate in this pilot study. They were asked to include five of their patients in the study, give them the research protocol at T0, follow them, write a short anonymized account of each session to determine what techniques were used and give them the protocol to complete after three months. Patients completed the questionnaire and returned it in a numbered prestamped envelope. Practitioners did not have access to the assessments of their patients, and the experimenters did not have access to the identifying data. The inclusion criteria were adult men or women with a BMI greater than 25 who did not perform bariatric surgery. When these criteria were met, the practitioners asked their patient if they agreed to participate in the study and provided them with a newsletter. All patients gave their informed consent. The care was all individual.

Participants

At T0, 35 participants were included in this study and divided into two groups according to the chosen therapist (G.R.O.S./DIET): 20 in the G.R.O.S. group and 15 in the DIET group. A posteriori, we excluded the only man from the study who belonged to the group G.R.O.S. Three

months after the start of the study (T1), 27 patients agreed to answer the questionnaire again (16 in the G.R.O.S. group and 11 in the DIET group).

In the G.R.O.S. and DIET groups, the mean age was 44.6 years (SD = 8.15) and 45.6 years (SD = 13), respectively. The sizes were homogeneous in both groups (G.R.O.S.: M = 1.65, SD = 0.06, DIET: M = 1.64, SD = 0.09).

The number of consultations performed averaged 4.80 (SD = 1.09) in the G.R.O.S. group and 5.00 (SD = 1.41) in the DIET group.

Measuring instruments

Three Factor Eating Questionnaire, TFEQ-21

Cognitive restraint (CR) and emotional eating (EE) were measured using the Three Factor Eating Questionnaire (Karlsson, Persson, Sjöström, & Sullivan, 2000), a new version of TFEQ-51 (Stunkard & Messick, 1985). Studies have shown that this tool is valid for patients suffering from obesity with good internal consistency and good discriminative abilities (Cappelleri et al., 2009). A French version has been validated (de Lauzon et al., 2004).

Six items measure CR (1, 5, 11, 17, 18 and 21), which is defined as the control of food intake in order to control weight. The participant responds on a Likert scale ranging from "completely true" to "completely wrong". An example of the items is "at the table, I deliberately take small shares as a way to control my weight." The higher the scores, the more intense the cognitive restraint.

Six other items measure EE (2, 4, 7, 10, 14, 16). For example, an item asks the participant to answer on the same Likert scale: "When I feel anxious, I am surprised to eat". For both subscales, the scores are between 6 and 24. The higher the scores, the greater the emotional eating is important.

Intuitive Eating Scale-2, IES-2

The intuitive eating (IE) level was measured using the French version of the IES-2 (Intuitive Eating Scale, version 2) (Camilleri et al., 2015), which was adapted from the original version (Tylka & Kroon Van Diest, 2013). The questionnaire includes 18 items, including seven inverted items (1, 2, 3, 4, 8, 9, and 10). The respondent answers on a Likert scale ranging from 1 to 5 (1 = strongly disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, 5 = strongly agree). It measures the mean intuitive feeding score (total score divided by eighteen) as well as the level of three subscales: eating for physical rather than emotional reasons, listening to feelings of hunger and satiety and unconditional permission to eat (Camilleri et al., 2015). An example of the items is as follows: "I am surprised to eat when I am under the influence of emotion (ex: anxious, depressed, sad), even when I'm not really hungry," which belongs to the subscale "eat for physical rather than emotional reasons". The higher the scores, the more intuitive the diet is.

Beck Depression Inventory, BDI-13

This 13-item self-questionnaire contains several series of four propositions based on elements of the cognitive triad described by Beck (Beck, Rush, Shaw, & Emery, 1979), which includes negative considerations about oneself, the outside world and the future (items 1 to 8, and item 10). The slowdown is apprehended by items 9, 11 and 12. Item 13 represents somatic disorders. Each item consists of 4 sentences corresponding to 4 degrees of increasing intensity of a symptom from 0 to 3. The overall score is obtained by adding the scores of the 13 items. The range of the scale is from 0 to 39. The higher the score, the more the patient is depressed. A threshold greater than 10 corresponds to a moderate depression, while a score of 19 and higher corresponds to severe depression (Mirabel-Sarron, 2005).

Other measures were collected but not analyzed because they were not hypothesized.

Hypotheses

We hypothesize that the G.R.O.S. management protocol will have a different effect on the CR, IE, EE, BDI variables compared with the standard dietary management. We expect that the weight (BMI) will drop significantly more with standard weight loss-centered dietary management than with G.R.O.S. management.

Results

Test the effect of each treatment

An initial series of analyses tested the effect of management on the different selected variables separately for each protocol by comparing the measurements obtained at T0 and T1. Given the sample sizes, the difference between the two measurement points was tested separately for each group using Wilcoxon's nonparametric W test for paired samples.

Descriptive statistics (the median and the corresponding dispersion measure: the median to median deviation or MAD) are presented in Table 1 along with the detailed results of the statistical tests. The results show significant weight loss and BMI in the G.R.O.S. group, which was unexpected given the limited duration of care. This result is shown in Figure 1. A significant decrease between T0 and T1 was also present in the G.R.O.S. group at the level of emotional eating and intuitive eating, which is consistent with our first hypothesis. By comparison, the DIET group only revealed a decrease in IDB scores. We have not found any benefit from this support on the variables CR, IE or EE, which is in line with our first hypothesis. This difference between the results in the DIET and G.R.O.S. groups must,

however, be put into perspective by the smaller size of the DIET group. In a second step, we sought to more directly compare the two groups to confirm this result.

Table 1. *Descriptive statistics and test of the change between timepoints, as a function of group*

Measure	Group	N	Median (MAD) at T0	Median (MAD) at T1	Change from T0 to T1 (Wilcoxon's W)
WEIGHT	GROS	15	85.00 (11.00)	82.70 (11.30)	$Z = 3.04, p = .002^{**}$
	DIET	11	78.00 (10.00)	80.00 (10.50)	$Z = 1.33, p = .182$
BMI	GROS	15	30.48 (3.61)	29.22 (2.73)	$Z = 3.01, p = .003^{**}$
	DIET	11	30.12 (3.21)	29.03 (2.87)	$Z = 1.24, p = .213$
CR	GROS	15	15.00 (1.00)	14.00 (3.00)	$Z = 0.00, p = 1.00$
	DIET	11	16.00 (3.00)	18.00 (2.00)	$Z = 0.82, p = .415$
EE	GROS	15	20.00 (3.00)	18.00 (4.00)	$Z = 2.32, p = .020^{**}$
	DIET	11	16.00 (3.00)	14.00 (3.00)	$Z = 0.91, p = .363$
IE	GROS	15	2.50 (0.22)	2.83 (0.50)	$Z = 2.84, p = .004^{**}$
	DIET	11	3.00 (0.39)	3.27 (0.38)	$Z = 1.24, p = .213$
BDI	GROS	15	4.00 (2.00)	3.00 (2.00)	$Z = 1.13, p = .258$
	DIET	11	5.00 (4.00)	3.00 (2.00)	$Z = 2.37, p = .018^{**}$

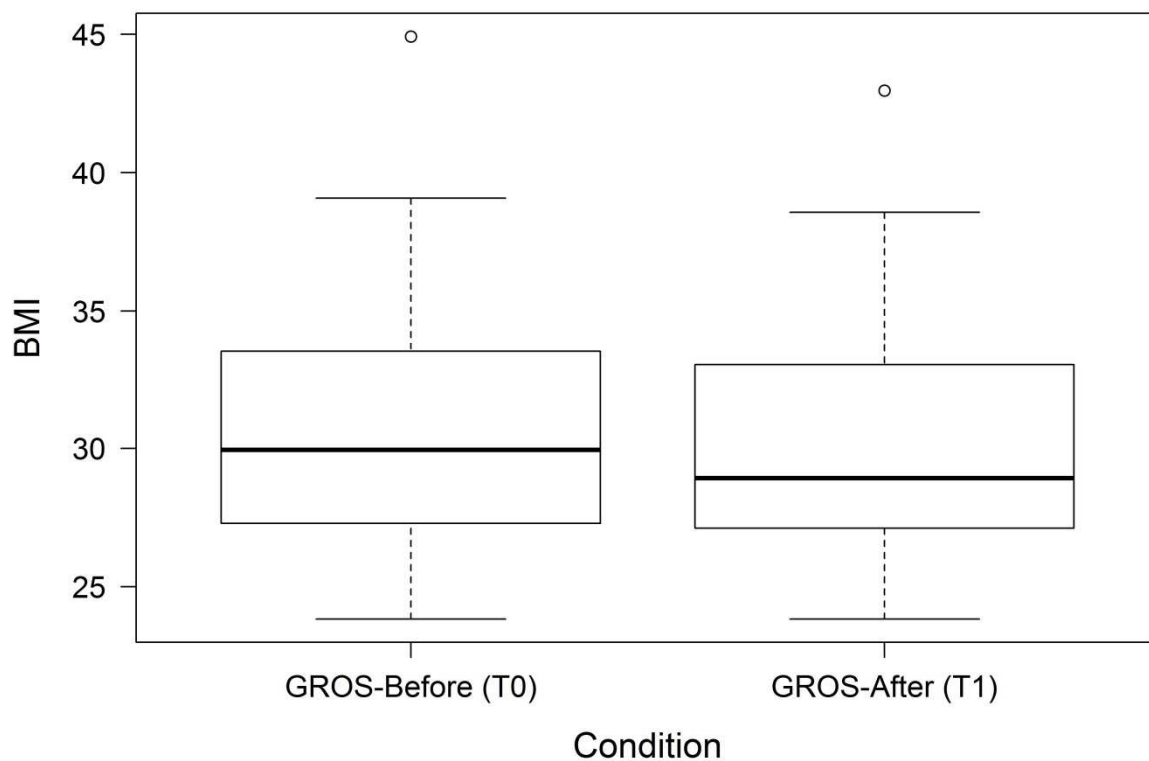
Note. N = Number of subjects ; MAD = Median absolute deviation ; WEIGHT = Weight in kilograms ; BMI = Body mass index ; CR = Cognitive restriction ; EE = Emotional eating ; IE = Intuitive eating ; BDI = Beck Depression Inventory.

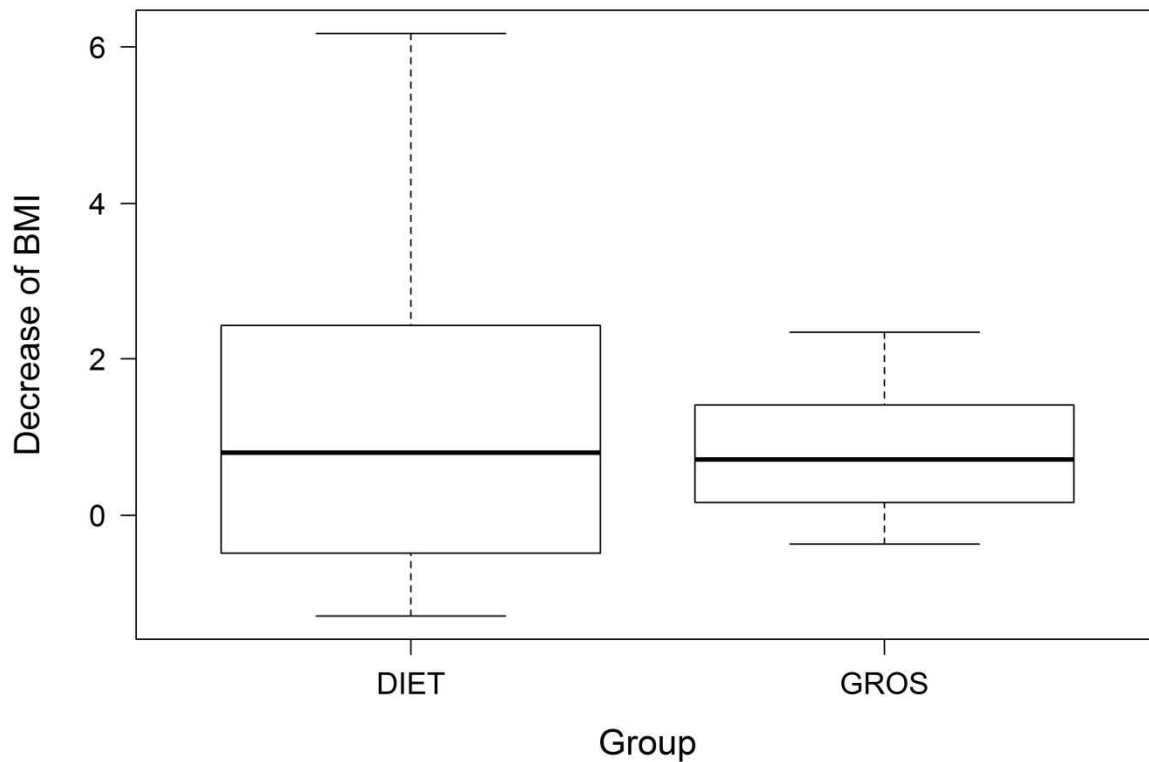
Direct comparison of both supported groups

A preliminary analysis sought to verify whether the T0 scores were comparable between the G.R.O.S. and DIET groups. The difference between the groups was tested using the nonparametric Mann-Whitney U-test for independent samples. The two groups did not differ significantly for weight ($Z = 0.79, p = .429$), BMI ($Z = 0.39, p = .693$), cognitive restraint ($Z = 0.62, p = .534$) or BDI ($Z = 0.10, p = .921$). A slight difference was found in emotional eating ($Z = 1.76, p = .078$) and intuitive eating ($Z = 1.65, p = .098$), but it did not reach significance at the 5% threshold in either case.

The last series of analyses tested whether the evolution between T0 and T1 differed significantly between the G.R.O.S. and DIET groups. For this, we calculated the evolution scores (T1-T0) and then tested the difference between the two groups using the nonparametric Mann-Whitney U test for independent samples. (This analysis is equivalent to the parametric test of the group interaction * measurement time).

The results of this series of analyses did not show any significant difference between the groups. The evolution of scores between T0 and T1 was not significantly different between the two groups for weight ($Z = 0.32$, $p = .748$) and BMI ($Z = 0.30$, $p = .767$) as shown in Figure 2. We also found no difference between the two groups in the evolution of cognitive restraint scores ($Z = 0.82$, $p = .413$), emotional eating ($Z = 0.92$, $p = .357$), intuitive feeding ($Z = 1.16$, $p = .246$), or BDI ($Z = 1.25$, $p = .213$). In other words, the data do not allow for conclusion on the superiority of one of the two supported management protocols, which is contrary to our first assumption of the superiority of the G.R.O.S. protocol.





Discussion

The purpose of this pilot study was to compare the effects of two different approaches to overweight and obese patients: the G.R.O.S. management protocol and standard dietary management.

First, the result of the effect of weight management is contrary to our original hypothesis. Indeed, the weight and BMI dropped significantly after three months of the G.R.O.S. management protocol, which we did not observe for the standard dietary management (DIET) group. The G.R.O.S. participants lost an average of 2.9 kg.

The fact that an overweight patient loses weight by listening to his food sensations is physiologically and theoretically expected and empirically demonstrated (Beintner, Emmerich, Vollert, Taylor, & Jacobi, 2019). Many studies confirm a negative correlation between intuitive

eating and BMI (Camilleri et al., 2017, Denny et al., 2013, Dockendorff, Petrie, Greenleaf, & Martin, 2012, Tylka & Kroon Van Diest, 2013). The more the patient listens and respects his food sensations, the lower his BMI is. On the other hand, it seems surprising to us that this weight loss happens so quickly in the management protocol given the intuitive and emotional eating scores at T0 (Citrome, 2019). Contrary to our initial hypothesis, the standard dietary management (DIET), which primarily targets weight loss, did not lead to significant weight loss over three months. We expected similar results from recent research combining dietary monitoring and increased physical activity (Mohamad et al., 2019) that highlighted significant beneficial results on weight after 12 weeks, which was the duration of our present study. This result cannot be explained solely by a lack of statistical power because the median weight increased over three months within this group. Standard nutritional management has evolved for many years, especially since the A.N.S.E.S. report (*Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail*), which highlighted the harmful consequences of diets (National Agency for Food Safety, Environment and Labor, 2016). Would the greater flexibility of dietary rules result in this lack of beneficial results on weight even in the short term? Based on our results, the sample should be increased to confirm or reject the lack of effect of this treatment over a short period of time.

Finally, the direct comparison between the two groups, which was performed on a very small sample, shows no significant difference between the G.R.O.S. and DIET groups for weight loss and BMI. The G.R.O.S. management protocol would therefore not be significantly more effective than standard dietary management for weight loss.

In keeping with our initial hypothesis and therapeutic goals, the intuitive and emotional eating improves after three months of G.R.O.S. support. Participants have less desire to eat emotionally and/or eat less for purely emotional reasons (e.g., anxiety). They also eat more in accordance with their physiological sensations of hunger and/or satiety and seem to be more

empowered to eat unconditionally. According to a recent study, intuitive eating seems to play an important role in the relationship between self-regulation and BMI (Ruzanska & Warschburger, 2019). Thus, the early effectiveness of weight management on weight seems to be a consequence of the decreased emotional eating and the improved respect for food sensations. Third, contrary to our hypothesis, the study could not highlight a modification of the cognitive restraint with the G.R.O.S. management protocol, although it constitutes an important axis of the therapeutic protocol. After three months, patients still have the intention or not to control their diet in order to lose weight. Several hypotheses can explain this result. First, it is likely that therapists have not yet completed this work. The minutes of the consultations allowed us to see that everyone had worked on food sensations and food beliefs. However, lifting the cognitive restraint in three months seems clinically difficult, especially in the presence of cravings with intense emotional eating. The second hypothesis concerns the validity of the tool for measuring the cognitive restraint used, i.e., the TFEQ-21. The analysis of the items shows that it evaluates the effective control and not the intention of control (Julien Sweerts et al., 2019). Thus, patients will likely have the same effective control after three months of management but their intention to control will be reduced because of listening to their food sensations. However, it is important and necessary to check whether the G.R.O.S. management protocol reduces the cognitive restraint by using a valid tool and a longer duration of care.

Finally, the pilot study showed a decrease in the intensity of the symptomatic depressive after 3 months of DIET management compared with the G.R.O.S. management protocol. This difference would it be due to the emotional work done in the G.R.O.S. management protocol and the lifting of consecutive avoidance as is often observed (Fouques, 2018). Indeed, the patient is allowed to experience his emotions rather than eat them. It would be necessary to evaluate other psychological variables. However, once again, the results of the repeated-

measures ANOVA indicated that dietary management would not be significantly more effective than G.R.O.S. management on depressive symptomatology.

Limitations

This study has many limitations, including the sample size, nonrandomization of participants in groups and nonstandardization of care. The American Psychiatric Association advises researchers to get closer to the clinic (American Psychological Association, 2015) and this was our goal. Indeed, we wanted to carry out an ecological study to observe the real effectiveness of the various treatments. However, such a study leads to a tendency towards nonhomogeneity of the groups on the AI and AE variables and a lack of control over the effectiveness of the G.R.O.S. management protocol and DIET therapists. Whether this tendency is a methodological bias and/or an ecological reality must be determined. Finally, the care is not completed after three months of follow-up.

Conclusions

Intuitive diets seem to be an interesting management path for patients who are overweight or obese. In France, the association G.R.O.S. proposes a protocol that would allow the patient to acquire this new flexible and adaptive eating behavior. The pilot study showed an improvement in weight and intuitive and emotional nutrition after three months of G.R.O.S. management protocol compared with the standard dietary management protocol, where only a decrease in depressive symptoms was observed. However, the superiority of the effectiveness of two treatments on the variables studied could not be demonstrated. This study has many limitations, and further research is needed. Indeed, it would be interesting to set up a study on a longer term

that included the three axes of the support of the G.R.O.S. (not only the first two), which would totally standardize the actual care.

Conflicts of interest

The first author points out that he received a grant from the association G.R.O.S. as part of his thesis.

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